

NOTICE OF INTENT **Modification of Source**

Intermountain Power Service Corporation (IPSC) submitted a Notice of Intent (NOI) to make certain changes at the Intermountain Generating Station (IGS) in Delta on September 23, 2002. This addendum summarizes that NOI and compiles the information required by UDAQ.

INTRODUCTION

The IGS is a coal fired steam-electric plant located in Millard County. IPSC is requesting a change in a proposed modification from a previous NOI and subsequent Approval Order (AO #DAQE-049-02). The NOI requests an approval order to proceed as described herein and to make applicable Title V permit changes to operate accordingly.

As required by Utah Administrative Code R307-401-2, the following information is provided:

1. **PROCESS DESCRIPTION:** IGS is a fossil-fuel fired steam-electric generating station that primarily uses coal as fuel for the production of steam to generate electricity. Both bituminous and subbituminous coals are utilized. Fuel oil and used oil are also combusted for light off, flame stabilization and energy recovery.

IGS is a two-unit facility currently approved to operate at a rated capacity of 950 megawatts (MW). We are in the process of performing the uprate to 950 MW per unit as approved through your office. Approximately 5.6 million tons of coal and 600,000 gallons of oil will be used each year in the production of electricity. Boiler capacity will be rated at 6.9 million pounds per hour of steam flow at 2,822 psi.

IGS has in place bulk handling equipment for the unloading, transfer, storage, preparation, and delivery of solid and liquid fuel to the boilers. No changes of this equipment are required nor expected. No changes in the usage of other raw materials or bulk chemicals are required nor expected.

Note that process diagrams have previously been submitted, and no changes from those are proposed here.

PROPOSED CHANGES: Rectified power drives and motors for induced fan motors need to be replaced due to obsolescence. IPSC has approval to increase surface area to the main boilers, and we are clarifying the location. IPSC is also requesting approval to install overfire air ports in each boiler to replace our current operating strategies for controlling NOx emissions. These changes are needed specifically for reliability, performance and/or routine maintenance needs, will not increase plant capacity beyond the current approved project.

PRODUCTION SUMMARY: IPSC is in the midst of an ongoing uprate project that will increase generation capacity from 875 to 950 MWhe, with steam flow design increasing from 6.2 to 6.9 million pounds per hour. Design heat input will increase from 8,500 to 9,225 million BTU per hour, requiring the use of 5.6 million tons of coal each year. See AO #DAQE-049-02 and it's corresponding NOI for details. Nothing in this NOI is intended to change those production aspects of the previously approved uprate project.

2. **EMISSION CHARACTERISTICS:** The composition and physical characteristics of emissions resulting from the proposed modifications are not expected to change with the exception of carbon monoxide (CO), which may increase by a net significant amount. Other pollutant emission rates, chimney mass flow, temperature, air contaminant types, and concentration of air contaminants will remain the same proposed in the uprate project. The current pollution control devices (PCD) include low-NOx burners, fabric filters and wet scrubbers.

Specifically, it is possible for CO emissions to increase as over-fire air (OFA) is used to decrease NOx emissions. When NOx emissions are fully minimized utilizing OFA, we believe that CO emissions can increase from 1989.6 tons per year (as calculated by AP-42) to 5,171.9 tons per year (as projected by boiler performance modeling).

3. **PCD DESCRIPTION:** Present pollution control device equipment for combustion includes dual register low NOx burners, baghouse type fabric filters for particulate removal, and flue gas desulfurization scrubbers. The low NOx burners provide a nominal 60 percent reduction in potential combustion NOx concentration, the baghouse filters operate at nominal 99.95 percent efficiency, and the wet scrubbers operate at nominal 90 percent efficiency. Control equipment for the handling and transfer of solid material include dust collection filters.

PCD UPGRADES: The project includes the addition of overfire air (OFA) ports and replacement or repair of dual register low NOx burners.

4. **EMISSION POINT:** The present emission point for the IGS boilers is a lined chimney that discharges at 712 feet above ground level (5,386 feet above sea level). The chimney location is 39° 39' 39" longitude, 112° 34' 46" latitude.
5. **SAMPLING/MONITORING:** Emissions from boiler combustion are continuously sampled and monitored at the chimney for nitrogen oxides, sulfur oxides, carbon dioxide, and volumetric flow. Opacity is measured at the fabric filter outlet. Other parameters recorded include heat input and production level (megawatt load). Monitoring will remain unchanged. Other emissions not directly monitored are calculated using engineering judgements, emission factors, and fuel analyses.
6. **OPERATING SCHEDULE:** Operation at IGS is 24 hours per day, seven days per week.
7. **MODIFICATION SPECIFICATIONS and CONSTRUCTION SCHEDULE:**
 - a. **Induced Fan Drive Power Supply Obsolescence & Replacement**

There are four induced draft (ID) fans for each generator at the Intermountain Generating Station. The fans are centrifugal airfoil, double width, double inlet design driven by synchronous motors through variable frequency drives. The existing variable frequency drives are of 1980 vintage, no longer manufactured, require increasing maintenance, certain critical repair parts are no longer available, and frequently fail, although such failures do not currently impact station operation due to fan redundancy. The variable frequency drives are scheduled for replacement beginning in 2003. The motors will require replacement to match current technologies for drive power. No changes to the fans themselves are being considered, and no change beyond approved capacity would result from the possible drive and motor change out. We are therefore requesting approval accordingly.
 - b. **Changes to Approved Boiler Modifications**

The steam generators at IGS are scheduled for modification to accommodate the 950 MW rating. Each boiler was approved to receive additional surface area to accommodate transient temperature anomalies, and to better control exit gas temperatures at the back (convection) pass of the boilers. Approved boiler modifications included the addition of preheat steam tubes to the convective pass of each boiler.

Due to latest modeling and operational data, this NOI proposes to change those modifications to the radiant section of the boiler, which will include the addition of platen superheater surface. The 36 platen superheater pendants in each boiler are scheduled to be lengthened by approximately 8 feet from their present approximate 40-foot length. The purpose of these changes was for better combustion control. These proposed changes are still on track for completion by March 2004, meeting the construction schedule originally set forth under DAQE-049-02.

c. **Low-NOx Burner Maintenance & Replacement**

IPSC proposes to replace the existing burners as needed in future years. Burners have not met their design life and need to be replaced or rebuilt. The replacement or rebuild of the present low-NOx burners can be considered as replacement-in-kind, as we do not propose to increase heat input through the new burners from what is currently approved. The current burners have already been shown to accommodate heat input rates of the current uprate modification. This NOI requests UDAQ to make an affirmative determination that the replacement of low-NOx burners with new low-NOx burners can be considered replacement-in-kind. Burner maintenance and repair for Unit 1 and burner replacement for Unit 2 will begin in 2004 and continue through 2008 in a multi-staged process.

d. **Overfire Air Ports**

A multiport overfire air system will be added to ensure stable operation in accordance with specified emissions limits. IPSC currently uses a combustion tuning methodology for NOx control that we find is costly and somewhat haphazard. Overfire air is also needed, in part, to accommodate the restriction on NOx emissions imposed by Acid Rain regulations that were promulgated based upon the Clean Air Act Amendments of 1990. Specifically, in 2007 Acid Rain requirements impose a 0.46 lb/Mbtu annual cap for NOx emissions on IPP. Since an early election was filed for IPP, this new limit was delayed. Current forecasts of coal quality indicate that without overfire air, the new Acid Rain limit could be difficult to attain.

The overfire air system will redirect approximately 10 -20 percent of total combustion air to a staged system of ports located directly above the top row of burners. When OFA is utilized to minimize NOx emissions as much as possible, CO emissions may increase by a net significant amount.

A full description of the OFA system and its operation has already been filed with the UDAQ. In fact, IPSC is currently installing and will test an OFA system on Unit One as allowed by an experimental approval order. The results of the test will help confirm potential CO increases and certain operational aspects of OFA.

e. **Distributed Control System**

IPSC had proposed replacement and upgrade of the distributed control system at IGS in the April 2001 NOI. However, AO #DAQE-049-02 did not specifically identify the DCS replacement, except for the description in the AO abstract as "other similar changes." For clarity, IPSC wishes to have the DAQ specifically identify the DCS project in the AO, and treat this NOI as such request. Certain control systems will be upgraded as an integral part of the uprate modification (i.e., new turbine, boiler modifications, OFA system) and are considered part of those modifications. However, IPSC is proposing to upgrade all corresponding operating control systems as well. The Intermountain Generating Station is controlled by several subordinate systems. These systems include a coordinated control system, a burner management system, a combustion control system, a turbine electro-hydraulic control system, a turbine supervisory system as well as several plant data acquisition and status display systems. Components within these systems are becoming increasingly hard to obtain from either primary or secondary manufacturers. Although there have been no system failures that have caused forced outages, these control systems are now causing reliability concerns due to the unavailability of key hardware.

The existing control systems are scheduled to be replaced beginning in the 2004 spring outage. The various control systems will be replaced with a centralized, distributed control system in a phased approach over a several year period to reduce the impact on generation capability. The current schedule shows this project being completed in the spring of 2007.

8. **ADDITIONAL INFORMATION:** IGS operates under a Title V permit (#2700010001). IPSC intends to continue to operate in full compliance with that permit and applicable requirements. No deviations from permit conditions are expected. IPSC also has received an experimental approval order to install and test OFA to determine both effectiveness and impacts to emission rates.

Applicability Determinations

Overfire Air. The installation of overfire air ports to the Units One & Two boilers can be expected to cause a decrease in NOx with a concomitant increase in CO. This follows a sliding relationship; i.e., if NOx levels are maintained, no CO increase can result. If NOx is minimized to the greatest extent possible, CO may rise accordingly. IPSC predicts that normal operation will show a slight decrease in NOx with the use of overfire air, resulting in a small increase in CO.

Nothing in this discussion or NOI is meant to indicate any requirement that IPSC must operate the overfire air and low-NOx burners to fully minimize NOx. IPSC's intent in adding further NOx controls is to balance performance with environmental control. IGS intends to continue to operate in such a manner that maximizes performance, yet still meets environmental limits as mandated by regulation and permit. This means that NOx will be controlled to meet short term thirty-day rolling average limits, as well as the annual WEPCO requirements outlined in the current AO.

New Source Performance Standards. IGS operates as a New Source Performance Standard (NSPS) power plant, regulated under Title 40 of the Code of Federal Regulations, Part 60, Subpart Da. The proposed changes do not trigger NSPS applicability. "Modification" is defined at 40 CFR 60.14 to include any change in operation of a source that increases the maximum hourly emissions of a Part 60 regulated pollutant above the maximum achievable during the previous five years. (See 40 CFR 60.14(h)). Even though the use of overfire air ports to reduce NOx can increase carbon monoxide (CO), CO is not a regulated pollutant under NSPS Subpart Da which is applicable to IGS.

Prevention of Significant Deterioration. IGS was constructed under Prevention of Significant Deterioration (PSD) permits, and with the exception of possible CO increases, none of the changes proposed herein are a major modification for PSD purposes. Based upon boiler performance modeling, CO emissions are expected to increase by a net significant amount (greater than 100 tons per year). Those projected CO increases have been modeled for possible air impacts and have been shown they do not cause or contribute to a violation of a NAAQS, PSD increment, or adverse Class I impact. Those modeling results have already been submitted to UDAQ.

Best Available Control Technology (BACT). IGS was constructed under a PSD permit which required BACT. Except for possible CO increases, none of the changes described in this NOI are a major modification for PSD purposes, and therefore the existing BACT at IGS is still the required level of pollution control. With regard to CO, BACT can only be provided through the application of good combustion practices (GCP), which is already in place, and is intimately related to best boiler performance, a strong business incentive. No other technological controls are available for CO in coal-fired boilers.